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FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of

ET Doc. No. 93-266

Review of the Pioneer's
Preference Rules

COMMENTS OF GRAND BROADCASTING CORPORATION

To: The Commission

Submitted by:

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PORTIONS OF PENDING CONTINUATION-IN-PART APPLICATION

TEXT OF PAPER PRESENTED AT NATIONAL ASSOCIATION OF BROADCASTERS (NAB '93) CONVENTION, LAS VEGAS, NV

i. SUMMARY

The Commission, in proposing to repeal or amend its pioneer's preference rules, must consider Congress' intent in enacting the competitive bidding law. In particular, the Commission must address whether or not Congress intended such law to dramatically alter the utility and merit of pending patent applications that are significantly based on the Commission's pioneer's preference rules, such as Grand Broadcasting Corporation's. Retroactive application of any of the proposed changes to Grand Broadcasting Corporation's associated pioneer's preference request would have far-reaching, adverse impact on patent law and remove essential predictability from the United States patent application system, ramifications Congress clearly did not intend in authorizing competitive bidding.

I. INTRODUCTION

Grand Broadcasting Corporation, hereinafter termed "Grand Broadcasting", by counsel and pursuant to the Commission's NOTICE OF PROPOSED RULE MAKING ("NPRM") in the above captioned matter, hereby files Comments in response to the NPRM. These Comments specifically address and are limited to addressing Grand Broadcasting's pending PETITION FOR RULE MAKING AND REQUEST FOR PIONEER'S PREFERENCE to allocate 500 kHz of radio frequency for INTERACTIVE BROADCAST RADIO SERVICE (IBRS) in both Gen. Doc. Nos. 90-314 and 91-2 (hereinafter termed "Petition").

The Commission, in its NPRM at Para. 7, expresses its

concern "that competitive bidding authority [pursuant to the Omnibus Budget Reconciliation Act of 1993 addition of new Section 309(j) to the Communications Act of 1934, as amended, 47 USC Section 151-713] may have undermined the basis for our pioneer's preference rules", citing in support thereof, inter alia, Bechtel v. FCC, 957 F2d 873 (D.C. Cir. 1992). The Court in Bechtel v. FCC, supra found:

" ... that changes in factual and legal circumstances may impose upon the agency an obligation to reconsider a settled policy or explain its failure to do so." Id at 881.

While the Commission is thus concerned that said competitive bidding authority constitutes a legal change undermining the pioneer's preference rules, the Commission, at Para. 9 of its NPRM, acknowledges that the competitive bidding law and congressional hearings thereon recognize the legitimacy of the pioneer's preference policy and the Commission's continued awarding of licenses based on "significant contributions to the development of a new telecommunications technology." At Para. 19 of its NPRM the Commission also requests comment on whether any repeal or amendment of its pioneer's preference rules should apply to pending pioneer's preference requests, such as the Petition.

II. ANY COMMISSION REPEAL OR AMENDMENT (INCLUDING A "PIONEER PREFERENCE" BID RULE) OF ITS PIONEER'S PREFERENCE RULES AS APPLIED TO GRAND BROADCASTING'S INTERACTIVE BROADCAST RADIO SERVICE (IBRS) PREFERENCE REQUEST WOULD DISRUPT OR INTERFERE WITH WELL-ESTABLISHED PATENT AND TRADEMARK OFFICE POLICIES, PROCEDURES AND ENABLING LEGISLATION - A RESULT CONGRESS CLEARLY DOES NOT INTEND WITH THE IMPLEMENTATION OF THE COMPETITIVE BIDDING LAW.

The United States patent laws are necessarily based on a predictable and reliable system of allowing inventors to apply for patents for inventions enabled by existing technology or technology that can be made available without undue experimentation. Scripps Clinic & Research Foundation v. Genentech, Inc., 927 F2d 1565, 18 USPQ 2d 1896 (Fed. Cir. 1991); United States v. Telectronics, Inc., 857 F2d 778, 8 USPQ 1217 (Fed. Cir. 1988); In re Wands, 858 F2d 731, 8 USPQ 1400 (Fed. Cir. 1988); Hybritech Inc. v. Monoclonal Antibodies, Inc., 802 F2d 1367, 231 USPQ 81 (Fed. Cir. 1986). Under the well-established enablement requirement a patent application must disclose or claim all operative components and matter comprising an invention except conventional elements or what is known to those skilled in the art. Hybritech Inc. v. Monoclonal Antibodies, Inc., supra ("a patent need not teach, and preferably omits, what is well known in the art"; Paperless Accounting, Inc. v. Bay Area Rapid Transit System, 804 F2d 659, 231 USPQ 649 (a patent also need not disclose or claim what is "available to the public"); Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co., 730

F2d 1452, 221 USPQ 481 (Fed. Cir. 1984). The predictable nature of the United States patent system confers patent monopoly rights upon such disclosure of new inventions.

In its pending Continuation-in-Part patent application Grand Broadcasting separated the "buy/inquiry" service applications, e.g. those non-voice applications specified in the Petition, from the non-IBRS voice applications (compare Claims 10 and 11 contained in the original patent application appended to the Petition with Claims 8 (application pages 39-40), 10 (application page 41) and 12 (application pages 42-43) contained in the appended

PORTIONS OF PENDING CONTINUATION-IN-PART PATENT

APPLICATION).* Grand Broadcasting separated such applications and claims based on its pending Petition and the Commission's pioneer's preference policy and rules, e.g. the Commission's virtual guarantee that, upon submitting the requisite technical feasibility, demonstration and other showings, Grand Broadcasting would be able to efficiently provide such "buy/inquiry" non-voice service to consumers via the requested 500 kHz radio

* Grand Broadcasting filed Comments in Gen. Doc. No. 93-252 (which are incorporated herein by reference) proposing a cellular-based infrastructure for IBRS in which the 500 kHz IBRS radio frequency network is "piggy backed" on the existing cellular radio infrastructure, using cellular radio for the voice service disclosed and claimed in Grand Broadcasting's pending Continuation-in-Part patent application. Such cellular radio infrastructure and engineering is ideally suited for such IBRS (non-voice)/voice interactive broadcast radio network development.

frequency.

The efficiencies inherent in transmitting short data bursts for IBRS ("buy/inquiry") transactions via narrowband, e.g. 500 kHz, rather than wideband, e.g. cellular, radio frequency are well-known to those skilled in the art. At page 14 of the ENGINEERING EXHIBIT 1 appended to the Petition Grand Broadcasting underscores such efficiencies:

"The major benefit consumers receive from Grand Broadcasting's proposed interactive radio service is the ability to interact with their broadcast radio receivers, located in their cars ... by simply pressing dedicated radio frequency pushbuttons in response to programming elements of interest. It is imperative that such radio frequency be a narrow bandwidth, such as 500 kHz, to keep usage costs low for the subscribing public."

The entire Petition, including such ENGINEERING EXHIBIT 1 statement, was referenced in Grand Broadcasting's Continuation-in-Part patent application (see at page 14 of the appended PORTIONS OF PENDING CONTINUATION-IN-PART PATENT APPLICATION).

In addition, in April, 1993, the undersigned, as President and General Counsel of Grand Broadcasting, presented a Paper focusing on the 500 kHz IBRS

"buy/inquiry" service at a Convention held by the National Association of Broadcasters (NAB), with said Paper openly presented (and Grand Broadcasting authorizing the NAB to record and make said Paper available to interested parties upon request) in reliance on the Commission's guarantee under its pioneer's preference rules of a 500 kHz radio frequency license. (See appended hereto a copy of said Paper; note the "RADIO ORDER" trademark application referenced therein has since become registered with the U.S. Patent and Trademark Office).

Such obvious and publicly disclosed efficiency of using 500 kHz radio frequency for IBRS (non-voice) service is a major criterion for the United States Patent and Trademark Office to issue a patent. Underwater Devices, Inc. v. Morrison-Knudsen Co. (1982, DC Hawai) 217 USPQ 1039; Hammerquist v. Clarke's Sheet Metal, Inc. (1981, CA9 Or) 658 F2d 1319, 212 USPQ 481; Racal-Vadic, Inc. v. Universal Data Systems (1980, DC Ala) 207 USPQ 902. Indeed, such an efficient radio frequency based network, coupled with the disclosed and claimed methods of broadcast data transmission (in particular the embedded method as specified in the Initial Tone Broadcast Study appended to a letter Grand Broadcasting filed with the Commission on March 23, 1993 in Gen. Doc. No. 90-314, which is incorporated by reference at the above referenced page 14 of the pending Continuation-in-Part patent application),

likely classify Grand Broadcasting's IBRS invention as a "pioneer" invention under patent law precedent. Sun Studs, Inc. v. ATA Equipment Leasing, Inc., 872 F2d 978, 10 USPQ 2d 1338 (Fed. Cir. 1989) (the concept of a "pioneer" in the patent field "arises from an ancient jurisprudence, reflecting judicial appreciation that a broad break-through invention merits a broader scope of equivalents than does a narrow improvement in a crowded technology."); Perkin-Elmer Corp. v. Westinghouse Electric Corp., 822 F2d 1528, 3 USPQ 2d 1321 (Fed. Cir. 1987) (pioneer invention constitutes more than mere improvement but rather is a major advance in the field and is entitled "to a broad range of equivalents").

Grand Broadcasting filed its pending Continuation-in-Part patent application on September 27, 1993. Under well-established patent law, Grand Broadcasting's pending Continuation-in-Part patent application receives the filing date of the original patent application (the "parent" application), e.g. May 1, 1992, with respect to matter described or disclosed in said original application, e.g. the IBRS "buy/inquiry" (non-voice) service applications. 35 USC Section 120; Illinois Tool Works, Inc. v. Foster Grant Co. (CA 7 Ill) 547 F2d 1300, 192 USPQ 365, cert den 431 US 929, 53 L Ed 2d 243, 97 S Ct 2631 (a patent applicant receives the benefit of the earlier filing date under 35 USC Section 120 when the disclosure in the earlier

patent application is sufficiently similar in scope and content to that in the later filed application to enable one skilled in the art to practice the invention.); Wagoner v. Barger (1972, Cust & Pat App) 463 F2d 1377 ("an invention claimed in a later patent application does not have to be described in an earlier patent application ipsis verbis in order to satisfy the 'same invention' requirement of 35 USC Section 120").

At Para. 11 of its NPRM the Commission requests "comment on whether competitive bidding permits innovative parties to have a reasonable expectation of obtaining licenses ... [and] whether small businesses [even with a pioneer "certification" and discounted bid amount from the Commission as proposed in NPRM Para. 12 and a block "set aside" as proposed in Gen. Doc. No. 93-253] would be affected differently from other concerns by retention or repeal of the rules." Simply stated, small businesses, such as Grand Broadcasting, will most likely not be able to attract financial support for innovative proposals - at least without virtually transferring total corporate equity and control to an investor or investors - until a patent issues thereon, as patents are and Commission pioneer "certifications" are not currently recognized in the financial community. Therefore, it is unlikely, and speculative at best, that Grand Broadcasting would be able to attract financial support to even bid for any "pioneer's

preference" that might be conferred under a revised bid system.

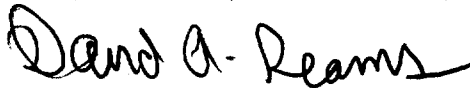
In addition to Grand Broadcasting likely being financially unable to make a "pioneer's preference" bid, there is no existing radio frequency carrier to provide the means of achieving said efficiencies on a national basis. Thus, should the Commission apply any of its proposed changes in its pioneer's preference rules to Grand Broadcasting's IBRS invention, the above referenced efficiency basis for the "buy/inquiry" (non-voice) service applications specified in Grand Broadcasting's pending Continuation-in-Part patent application would be severely undermined (and said patent "pioneer" status placed in jeopardy). As a consequence, the Commission, in removing a key benefit upon which Grand Broadcasting's Continuation-in-Part patent application is based, will cause irreparable harm on the well-established patent application and issuance procedure and practice as well as Grand Broadcasting's legislated right to an applied-for patent.

III. TO AVOID SUCH COMMISSION DISRUPTION AND INTERFERENCE WITH THE UNITED STATES PATENT SYSTEM ANY COMMISSION CHANGES TO THE PIONEER'S PREFERENCE RULES SHOULD NOT APPLY TO PENDING PIONEER PREFERENCE APPLICATIONS ASSOCIATED WITH PENDING PATENT APPLICATIONS THAT ARE BASED AND WERE FILED IN RELIANCE ON THE COMMISSION'S PIONEER'S PREFERENCE RULES.

The Commission can easily avoid disrupting and interfering with the well-established United States patent

application and issuance system by simply not applying retroactively any changes to the pioneer's preference rules to pending pioneer's preference applications associated with pending patent applications that are based on and were filed in reliance on the Commission's pioneer's preference rules. As discussed above, Grand Broadcasting's pending Petition is one such pioneer's preference application that is based on and was filed in reliance on the Commission's pioneer's preference rules. To avoid undue conflict with the enabling legislation and authority Congress has conferred on the United States Patent and Trademark Office, the Commission should therefore not apply any changes to its pioneer's preference rules to the Petition.

Respectfully submitted,



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PORTIONS OF PENDING CONTINUATION-IN-PART PATENT APPLICATION

An Apparatus or Device and Several Processes for an
Interactive Radio Communications Service

RELATED APPLICATIONS

This application is a continuation-in-part of pending application Ser. No. 07/877,078, filed May 1, 1992 and now abandoned.

TECHNICAL FIELD

This invention relates to the field of data communications and speech synthesis used for interactive aural electronic marketing and marketing research and in particular consumer interaction with broadcast radio program elements.

BACKGROUND ART

Interactive electronic marketing and marketing research systems in prior art have focused and been designed for use by television viewers and broadcast radio listeners viewing a display screen or at least without exploiting speech synthesis techniques for electronic interactive exchanges. See Gomersall, Pat. No. 4,630,108; Wiedemer, Pat. No. 4,907,273; Von Kohorn, Pat. No. 4,876,592; Bushnell, Pat. No. 4,071,697; Morales-Garza, Pat. No. 5,101,267; Morales-Garza, et al, Pat. Nos. 4,591,906 and 4,755,871; Broughton, Pat. No. 4,807,031; Russell, Jr., Pat. No. 4,890,322; Wheelless, Pat. No. 5,023,934; Matthews, Pat. No. 4,499,601; Mankovitz, 5,134,719; Grosjean, et al, 5,146,612; Alwadish, Pat. No. 5,063,610.

Further, a specific technique developed according to the principles of the applicant's original patent application, Serial No. 07/877,078, is described in an Initial Tone Broadcast Study appended to a letter dated March 23, 1993 filed with the FCC by the applicant in FCC GEN. Doc. No. 90-314, which is incorporated herein by reference. The steps of this specific technique of embedding and recovering broadcast data, as well as a certain mixing/masking procedure, is described as follows:

modulating by phase shift keying an audio carrier tone at a predetermined hertz carrier of a broadcast radio signal at a predetermined rate and time with the zero bits of generated broadcast data codes having a predetermined degree of phase shift and said one bits of generated broadcast data codes having a predetermined degree of phase shift,

computer 1/3 creating a program to compute the waveform of the modulated carrier using a predetermined sample rate to sample the computed waveform and to output it to a digital-to-analogue converter located in encoding device 5/8,

recording or storing the output of said digital-to-analogue converter located in said encoding device 5/8 on storage medium 10,

distributing said output a) electronically to suitably equipped receiving devices by transmitting said

I claim:

1. An improved electronic marketing method comprising the steps of:

generating certain data codes of a predetermined format including at least a) a synchronizing/signalling code, b) a product/service identification code identifying a predetermined broadcast radio program element said data codes are to be encoded in and a respective predetermined program element, product or service associated with said broadcast program element and c) one or a plurality of permissible response codes associated with one or a plurality of respective encoded broadcast program elements and one or a plurality of predetermined available pushbutton responses thereto, with said data codes to be broadcast by conventional means by one or a plurality of broadcast radio stations in one or a plurality of predetermined market areas,

distributing said generated data codes via conventional means using a public or private communications link to one or a plurality of computers at said one or a plurality of broadcast radio stations,

storing said received data codes in said one or a plurality of receiving radio station computers,

said one or a plurality of said receiving radio station computers preparing said respective received data codes for broadcast,

pushbutton pressed,

automatically repeating said connection attempts until connection is achieved or a predetermined time limit is reached,

said apparatus retrieving from storage and transmitting via said wire or wireless bidirectional communications link said response data codes to said service center computer,

said service center computer receiving said apparatus transmitted data codes, validating the apparatus identification code contained in said received data and decoding said data,

said service center computer processing said received data according to the codes and predetermined address information encoded in said received data, and

said service center computer, in response to predetermined received response data codes, sending back to said respective transmitting apparatus speech synthesizer information capable of being verbally delivered.

2. A method according to Claim 1 wherein

said generated broadcast data codes are comprised of a) a short signalling/synchronizing code which alerts said receiving apparatus that information transmission is about to commence, b) an identification code that uniquely describes a predetermined program element, product or service that is the subject of the associated broadcast

program element (such as a Universal Product Code or equivalent), c) a distribution center identification code, d) a code identifying the radio station over which said associated program element is broadcast, e) a response telephone number, f) a code identifying at least one permissible response option available to the apparatus user and g) a checksum code used for data error detection, and

said microprocessor response data codes are comprised of a) a short signalling/synchronizing code which alerts said service center computer to receive data, b) said product/service identification code contained in said generated broadcast data codes that uniquely describes the program element, product or service being responded to by said apparatus user, c) said distribution center identification code, d) said code identifying the radio station over which the associated program element is broadcast, e) the date and time that said RDPU received said broadcast data code set, f) a code representing the receiving location, g) the pre-assigned responding apparatus identification code, h) a predetermined response mode code, and i) a checksum code used for data error detection.

3. A method according to Claim 1 wherein

said broadcast data codes are transmitted by conventional radio station subcarrier channel means via said one or a plurality of receiving computers located at

the total length of the broadcast data codes, cross-correlating the signal with the one and zero bit data series to filter the signal at just said predetermined hertz carrier frequency used to carry said embedded data codes, multiplying said cross-correlation output for the signals together on a point by point basis, and clipping said multiplied output at one or a plurality of predetermined levels.

7. A method according to Claim 1 wherein

said pushbutton device includes a single pushbutton dedicated to making voice contact with a predetermined representative for a respective product or service marketed in a program element or a program element associated with said generated broadcast data,

said generated data codes further include a predetermined telephone number to be used for making said voice contact via a coupled conventional voice communications device with said predetermined representative, wherein

said telephone number received by said receiving apparatus is input to and automatically dialed by said coupled voice communications device and

said voice connection is made via conventional switch facility.

8. A method according to Claim 1 wherein

said pushbutton device includes a single pushbutton

dedicated to requesting additional information concerning the product or service identified in said respective product/service identification broadcast code received and decoded by said receiving apparatus and

said permissible response mode code contained in said broadcast data codes is a code indicating the availability of said pushbutton response with respect to said identified product or service.

9. A method according to Claim 1 wherein

said pushbutton device includes a single pushbutton dedicated to requesting additional information concerning the product or service identified in said respective product/service identification broadcast code received and decoded by said receiving apparatus,

said permissible response mode code contained in said broadcast data codes is a code indicating the availability of said pushbutton response with respect to said identified product or service,

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10. A method according to Claim 1 wherein

said pushbutton device includes a single pushbutton dedicated to electronically ordering or buying a product or service identified in said product/service identification broadcast codes received and decoded by said receiving apparatus and

said permissible response mode code contained in said broadcast data codes is a code indicating the availability of said pushbutton with respect to said identified product or service.

11. A method according to Claim 1 wherein

said pushbutton device includes a single pushbutton dedicated to electronically ordering or buying a product or service identified in said product/service identification broadcast codes received and decoded by said receiving apparatus,

said permissible response mode code contained in said broadcast data codes is a code indicating the availability of said pushbutton with respect to said

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12. A method according to Claim 1 wherein
said pushbutton device includes two pushbuttons

said first such pushbutton dedicated to electronically ordering or buying a product or service identified in said product/service identification broadcast codes received and decoded by said receiving apparatus, and

said second such pushbutton dedicated to requesting additional information concerning the product or service identified in said product/service identification broadcast codes received and decoded by said receiving apparatus and

said permissible response mode code contained in said respective broadcast data codes is a code indicating the availability of said respective pushbuttons with respect to said identified products or services.

13. A method according to Claim 1 wherein

said pushbutton device includes two pushbuttons

said first such pushbutton dedicated to electronically ordering or buying a product or service identified in said product/service identification broadcast codes received and decoded by said receiving apparatus, and with respect to interactive program elements encoded for affirmative responses such as surveys, polls or questions asked, dedicated to indicating affirmative response thereto,

said second such pushbutton dedicated to requesting additional information concerning the product or service identified in said product/service identification

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NAB '93 CONVENTION PAPER PRESENTED APRIL 21
"THE EMERGING INTERACTIVE BROADCAST
RADIO MARKETPLACE"

On November 9, 1992, Grand Broadcasting Corporation filed with the Federal Communications Commission a Petition requesting allocation of spectrum for Interactive Broadcast Radio Service or IBRS. In that Petition, Grand Broadcasting is also seeking a Pioneer's Preference under FCC Rules for an innovative and far-reaching IBRS service proposal. Indeed, the specific service described promises to interface digital, interactive and multimedia technology - the focus of this NAB '93 Convention - to existing broadcast radio facilities.

Specifically, in FCC General Docket Number 90-314, Grand Broadcasting is requesting the Commission allocate spectrum from the 901-902, 930-931 or 940-941 megahertz bands to connect radio broadcasting with the emerging digital, interactive and multimedia world. The Petition proposes two competing IBRS service providers per market area, with each competitor using 500 kilohertz as a Part 95 licensee.

The Petition defines IBRS as a two-way, mobile and fixed digital data service. In addition, IBRS is to provide subscribers with communications that interacts with all forms of radio program transmission, including cable and DAB as well as conventional broadcast radio.

The specific IBRS service and associated interactive radio device proposed in Grand Broadcasting's Petition is subject to a patent pending status as well as the Pioneer's Preference Request. Also, the product name for such device, Radio Order, is subject to a trademark pending status.

IBRS and Grand Broadcasting's proposed Radio Order service, if allowed by the Commission, will create a vast, untapped marketplace in radio listeners' cars and homes. Indeed, the Radio Order IBRS service will enable radio listeners to electronically buy and pay for advertised products and services as well as

musical recordings, such as compact discs, containing songs aired. The simple push button Radio Order device will also equip radio listeners with means to request and immediately receive various multimedia information, including bar-coded coupons and audio and graphic image data, concerning advertised products and services and musical recordings.

The Radio Order IBRS system is based upon existing data broadcasting and transmission technology. Along with the interactive radio device, three essential processes comprise the system: first, radio station transmission of coded source data; second, the reception process; and third, the response data.

RADIO STATION TRANSMISSION OF CODED SOURCE DATA

To identify products/services advertised, songs aired, radio station game shows or contests or other programming elements, each radio station may encode its commercials and entertainment material with data tracks which uniquely identify the product, service or programming element along with the identification of the originating station. This data is then transmitted (broadcast) in real time, either through subcarriers or data bursts embedded within the program audio. When a product, service or programming element is advertised or broadcast to which radio listeners may respond, the "response buttons" illuminate on the RADIO ORDER device, giving the subscriber the option of responding by pressing the "buy" or "affirmative response" button (button #1) or the "more information" button (button #2).

Coded data is sent from the broadcast radio station during programming elements making use of this audience interaction scheme. Such data is necessary to identify the product or service or other programming element being advertised or broadcast.

The data may be transmitted with or without the active participation of the broadcast radio station. Furthermore, it may be sent on a dedicated data channel or embedded in the program elements themselves. Alternatively, comparing the listener push button response with the radio station's program/commercial time log will identify the product/service/program element of interest.

Where the broadcaster "actively participates", the station is active in preparing and sending the data to the subscriber or consumer. A signal code is periodically sent to activate the receiver. A computer at the broadcast station prepares the data burst to be sent:

- 1) a short signalling/synchronizing code;
- 2) the product/service/programming element identification code;
- 3) the local distribution channel code;
- 4) the local broadcast station identification code;
- 5) the local response telephone number (if a voice contact link is available);
- 6) the permissible response mode code;
- 7) a checksum code for error detection.

This approach assumes that the broadcaster's transmission facility includes subcarrier capability, such as an RDS channel or via a conventional SCA channel.

Passive broadcast station participation does not require that the broadcast station compose the data to be sent to the consumer. Instead, the data is transmitted via a data burst which is embedded in the audio signal of a program element. The data burst consists of:

- 1) a short signalling/synchronizing code;
- 2) the product/service/programming element identification code;
- 3) the local distribution code;
- 4) the local broadcast station identification code;
- 5) the local response telephone number (if appropriate);
- 6) the permissible response mode code;
- 7) a checksum code for error detection.

This approach is attractive where the broadcast station's transmission facility does not have subcarrier capability, e.g. AM broadcasting, in that the data burst can be mixed into or embedded in the audio signal of the program element, either by the radio station if it is an "active participant" or by the element